



# 2018 POKER FLAT SOUNDING ROCKET CAMPAIGN

## Quick Look

● ● ●  
January 15 – 31, 2018

● ● ●  
Four launches from the  
Poker Flat Research  
Range in Alaska

### Super Soaker

three rockets

**LAUNCH WINDOW:**  
January 15 – 31, 2018

**LAUNCH TIME:**  
5 – 8 a.m. AKST  
All 3 rockets launched within  
a 32 minute period

**LAUNCH VEHICLES:**  
NASA Terrier-Improved Orion  
1st stage: Terrier  
2nd stage: Improved Orion

**VEHICLE LENGTHS:**  
Vehicles 1 and 3: 36 feet  
Vehicle 2: 34.5 feet

**APOGEE:**  
Vehicles 1 and 3: 100 miles  
altitude reached in about 3.3  
minutes  
Vehicle 2: 61 miles altitude  
reached in about 2.6 minutes

**TOTAL FLIGHT TIMES:**  
Vehicles 1 and 3: 7 minutes  
Vehicle 2: 5.5 minutes

**PRINCIPAL INVESTIGATOR:**  
Irfan Azeem  
Atmospheric & Space  
Technology Research Assoc.  
Boulder, Colorado

**MISSION:**  
"Super Soaker is a sounding rocket experiment designed to determine how large quantities of water could affect the upper atmosphere and form Polar Mesospheric Clouds (PMCs). Water vapor is a common exhaust product of space traffic. Super Soaker will fly to the upper atmosphere carrying about 50 gallons of water, about the amount in a bathtub. We will release the water canister at about 53 miles, dispersing and vaporizing the water. We will measure the basic state of the upper atmosphere before, during and after the release to determine the impact. These measurements include temperature, winds and high-altitude layers of ice particles known as PMCs."

– Irfan Azeem



A Super Soaker payload is tested for its ability to operate while experiencing vibrations during flight.



One of the three Super Soaker payloads undergoes spin/balance testing in the Sounding Rocket Payload Processing Facility at NASA's Wallops Flight Facility.

### Diffuse X-Rays from the Local Galaxy (DXL)

**LAUNCH WINDOW:**  
January 15 – 31, 2018

**LAUNCH TIME:**  
2 – 5 a.m. AKST

**LAUNCH VEHICLE:**  
NASA Black Brant IX  
1st stage: Terrier  
2nd stage: Black Brant

**VEHICLE LENGTH:**  
57 feet

**APOGEE:**  
143 miles in about 4 minutes

**TOTAL FLIGHT TIME:**  
About 16 minutes

**PRINCIPAL INVESTIGATOR:**  
Massimiliano Galeazzi  
University of Miami, Florida

**MISSION:**  
"Very low energy diffuse X-rays from space are believed to come from two sources. The first source is located outside our solar system and is generated by remnants of multiple supernovae explosions forming what is now called the Local Hot Bubble region of our galaxy. The second source is within the solar system and is generated by the solar wind charge exchange. DXL seeks to gain a better understanding of the nature and characteristics of these sources."

– Massimiliano Galeazzi



Personnel at the Wallops Flight Facility test the DXL payload's ability to connect with the Global Positioning Satellite (GPS) network which will be used to determine the location of the payload during flight.



The DXL payload is assembled at NASA's Wallops Flight Facility in Virginia prior to its shipment to the Poker Flat Research Range in Alaska.

